

## **AMENDMENTS TO THE CLAIMS**

### **Claims 1-13 (Canceled)**

**Claim 14 (New)**      A high-precision desktop thermal lens microscope apparatus, comprising:

- a semiconductor laser forming an excitation light source operable to emit excitation light;
- a chopper positioned to modulate the excitation light source when emitted from said excitation light source;
- a beam expander that enables collimation adjustment in a direction of a light path of the excitation light and biaxial centering in a direction perpendicular to the excitation light path and which is positioned to emit the excitation light as non-parallel light-ray beams when the excitation light is emitted from said excitation light source;
- another semiconductor laser forming a probe light source operable to emit probe light;
- a collimator lens positioned to emit the probe light as parallel light-ray beams when the probe light is emitted from said probe light source;
- a microscope optical system operable to receive the modulated excitation light as non-parallel light-ray beams and the probe light as parallel light-ray beams, said microscope optical system comprising an objective lens system and having a stage for receiving a specimen thereon, wherein the modulated excitation light and the probe light can be passed through said objective lens system and into said stage such that a thermal lens is formed by irradiation of the modulated excitation light into a specimen on said stage, wherein the probe light can be passed through the thermal lens so as to be focused on an optical axis of the modulated excitation light around the thermal lens and diffused by the thermal lens;
- a light receiving system positioned to the modulated excitation light and the probe light that has passed through the thermal lens; and
- a single housing, wherein said excitation light source, said probe light source, said chopper, said beam expander, said collimator lens, said microscope optical system, and said light receiving system are integrated together in said single housing.

**Claim 15 (New)** The high-precision desktop thermal lens microscope apparatus of claim 14, wherein said chopper is operable to perform lock-in amplifier single processing, and said microscope apparatus further comprises a modulation mechanism operable to perform phase-locked loop (PLL) control of a device of said chopper to modulate the excitation light.

**Claim 16 (New)** A method for performing a chemical analysis, comprising performing chemical analysis of a very small quantity in a micro spatial region on a chip with the use of the high-resolution desktop thermal lens microscope apparatus according to claim 14.

**Claim 17 (New)** A method for performing a chemical analysis, comprising performing chemical analysis of a very small quantity in a micro spatial region on a chip with the use of the high-resolution desktop thermal lens microscope apparatus according to claim 15.